



Photo Album Region Celebrates Opening of Bicycle/Pedestrian Path on Benicia-Martinez Bridge

Festivities were recently held to mark the official opening of the new bicycle/pedestrian path along the George Miller, Jr. Memorial Bridge leading from Benicia to Martinez. MTC's Bay Area Toll Authority (BATA) and Caltrans hosted opening events at both ends of the bridge, kicking off the celebration with a ribbon-cutting in Martinez at the foot of the bridge. Attendees then joined in the official first walk/ride across the bridge, where an opening ceremony followed at Vista Point in Benicia.

The opening of the two-mile-long bicycle/pedestrian path signals completion of the final improvements to the Benicia-Martinez Bridge, which connects Contra Costa and Solano counties across the Carquinez Strait and consists

of a pair of spans — one dating to 1962 and named for the late state Assemblyman and Senator George Miller, Jr., and another that opened in 2007 and is named for his son, Congressman George Miller. The path also serves as an important link in three regional trail systems that are works in progress: the San Francisco Bay Trail, which rings the shorelines of San Francisco and San Pablo bays; the Ridge Trail, which encircles the region at the ridge line; and the Carquinez Strait Loop Trail, which, as the name implies, will take bicyclists and walkers on a scenic route along both sides of the Carquinez Strait.

There are now five Bay Area bridges that allow bicyclists and pedestrians to cross, the others being the Al Zampa

Memorial Bridge (part of the Carquinez Bridge complex), the Antioch Bridge, the Dumbarton Bridge and the Golden Gate Bridge. The East Span of the San Francisco-Bay Bridge now taking shape will also feature a bicycle/pedestrian path.

Funded with bridge tolls primarily through the Regional Measure 1 (RM 1) program approved by voters in 1988 and administered by BATA, the \$50 million Benicia-Martinez Bridge project encompassed reconfiguring the old 1962 span to accommodate southbound traffic, along with adding the new path. An earlier RM 1 project delivered the parallel span, which carries northbound traffic.

The bicycle/pedestrian path is open 24 hours a day, seven days a week.

Eyebar Repair

Continued from inside spread

leaped into action and flew his own plane from his ranch in Montana to the fabrication facility in Arizona.

Stinger worked through the night, miraculously locating a charter DC-9 to airlift the saddles to Oakland Sunday morning.

"A herculean effort has been done to have these pieces fabricated in one day," Caltrans spokesman Bart Ney said at a Sunday afternoon press conference.

The brilliantly simple fix hit a glitch when a beam that was part of the upper saddle assembly proved too large to fit into the tight space between the damaged

eyebar and the one adjacent. Since there was no time to send it back to Arizona, Maroney and his team came up with the next quick fix: a steel shim to extend the beam far enough above the tight space to ensure a snug fit against the eyebar while maintaining a solid connection to the saddle. To get the size just right, he assigned a young T.Y. Lin engineer to create a model extension piece out of poster board, then had a crew hoist the model to the damaged eyebar to make sure it would work (see photo at top of story).

American Bridge/Fluor, the prime contractor on the tower portion of the span, did its part

by shaping the extender piece on the spot. As soon as the saddles, extender piece and tensioning rods were installed, the fracture began to close up, and Maroney knew he was home free — the bridge would be able to open by the Tuesday morning commute after all, albeit a couple of hours later than originally planned.

Not that Maroney can relax entirely. Caltrans is stepping up inspections of the old East Span, which must continue to carry its heavy traffic load for at least another four years while the new East Span is completed. "Now we need to keep an eye out. The bridge is talking to us," he said.

— Brenda Kahn

In the News

MTC Executive Named To Top D.C. Post

Therese W. McMillan, a 25-year veteran of MTC, has moved to Washington, D.C., to take on a new assignment as deputy administrator of the Federal Transit Administration, the second-in-command job at the agency. McMillan, who joined MTC in 1984 and served as the Commission's deputy executive director for policy since 2001, assumed her

new post on June 30.

McMillan will assist Federal Transit Administration chief Peter Rogoff in leading a staff of more than 500 in the D.C. headquarters office and 10 regional offices throughout the United States and managing an annual budget of approximately \$10 billion plus \$8.4 billion in Recovery Act funds.

"Therese's hands-on experience working across transportation modes will enable her to deliver on the president's vision for transportation investments that truly improve the quality of life of all citizens," said Rogoff.



Therese McMillan

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Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, California 94607

510.817.5700 TEL
510.817.5769 TDD/TTY
510.817.5848 FAX
info@mtc.ca.gov E-MAIL
www.mtc.ca.gov WEB

Steve Heminger
Executive Director
Ann Flemer
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Andrew B. Fremier
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OCTOBER/NOVEMBER 2009

TRANSPORTATION NEWS
FOR THE NINE-COUNTY
SAN FRANCISCO BAY AREA



Letter to Readers

Dear Readers:

You're used to getting *Transactions* via the mail, but did you know you also can read it online at <www.mtc.ca.gov/news/transactions>? And now we have an easy way for you to find out when we post new editions. Just click on the little red envelope icon at the top of the home page, news page or *Transactions* page; you will be taken to a form that will allow you to subscribe to notices about our newsletter postings, as well as to alerts for other new content, including our daily compilation of headlines from around the region, and press releases. If you would prefer to get your newsletter strictly online now that this alert system is in place, just send an e-mail with your full contact information to <info@mtc.ca.gov>, and we'll remove you from the newsletter mailing list (or indicate this preference on the enclosed survey).

Tell Us What You Think

In the coming weeks, we will be evaluating the role and value of our various publications in these tough economic times, and in the face of a global shift away from printed media and toward more electronic communication with constituencies. We would like to engage you in this discussion via the enclosed survey, which is a self-mailer. You can also access it online at <www.mtc.ca.gov/survey>. Respond by November 30, 2009, and we will send you a free poster of the new East Span of the San Francisco-Oakland Bay Bridge. You also can send an e-mail with your thoughts and suggestions to <editor@mtc.ca.gov>.

— Brenda Kahn, Editor

Extreme Engineering: Massive Deck Section Glides Into Place

CREWS RACE AGAINST TIME TO INSTALL BAY BRIDGE BYPASS AND REPAIR BROKEN EYEBAR

Monumental.Methodical.Miraculous.

Those three words sum up the tricky construction on the East Span of the San Francisco-Oakland Bay Bridge that required a complete closure of both halves of the bridge over Labor Day weekend 2009. Monumental in that nearly 7,000 tons of steel were moved in one 24-hour period. Methodical in that two years of planning, with every step carefully choreographed, went into the daring aerial operation to roll out a two-tiered chunk of deck the length of a football field, and slide in a replacement piece of equal length. And miraculous in that when an unexpected glitch came along in the form of a significant fracture elsewhere in the latticework holding up the existing East Span, engineers were able to come up with a solution and commission parts on the spot, and still reopen the bridge by the planned target — the morning commute on Tuesday, the day after Labor Day.

But perhaps the most important word for the weekend was teamwork. Among the numerous firms involved in clearing the way for, moving and hooking up the prefabricated deck piece as well as in completing a host of ancillary projects timed to take advantage of the bridge closure. Among the scores of construction workers and tradespeople toiling around the clock to get the job done. And among the three agencies that make up the Toll Bridge

Program Oversight Committee (TBPOC), which is overseeing the new Bay Bridge East Span project that was at the heart of the whole operation: MTC's Bay Area Toll Authority (BATA), Caltrans and the California Transportation Commission.

Diary of a Dramatic Weekend

A series of loud metallic pops in the late afternoon of Friday, September 4, was music to the ears of the Caltrans and

Bay Area Toll Authority officials perched at a strategic location on Yerba Buena Island and monitoring the movement of a massive deck section of the old East Span of the Bay Bridge. The noise indicated that after nearly 24 hours of preparation that had commenced with the bridge closure the night before, the 3,200-ton, 300-foot deck section was finally free of its moorings and was ready to roll. Once it started to move on skids reportedly greased with common dish soap, the double-deck piece slid out with relative ease and speed, assuming its resting position 150 feet above the ground by early Friday evening.

Much-on-the-scene preparation and angst went into that climactic moment, and not everything went according to plan when it came to amputating a chunk of the 73-year-old span.

"When you open up an old bridge, you find out a few things. It has a few secrets to give up.

Story continued on inside spread



Drivers must slow down to navigate the "S" curve (clearly evident in this view looking east from Yerba Buena Island) in the new East Span bypass.

In Print

New Bay Area Plan Puts Change in Motion



After two years of analysis and outreach, the final *Transportation 2035 Plan* has been adopted and is now available. A collaborative effort among MTC, the Association of Bay Area Governments, the Bay Area Air Quality Management District and the Bay Conservation and Development Commission, the plan specifies how some \$218 billion in anticipated federal, state and local transportation funds will be spent in the nine-county Bay Area during the next 25 years.

To save costs and paper, MTC encourages you to view the plan and associated Transportation 2035 documents online at <www.mtc.ca.gov/planning>. For printed copies, contact the MTC-ABAG Library via e-mail at <library@mtc.ca.gov> or telephone at 510.817.5836.

On the Web

Time-Lapse Video of East Span Detour Installation

See the four-day East Span aerial bypass operation compressed into less than one minute in a time-lapse video of the Labor Day weekend, set to entertaining music; we show the procedure at the deck level and then again from underneath the deck. Catch it on our site, or on our YouTube channel: <www.mtc.ca.gov/news/video.htm> or <www.youtube.com/user/mtcabaglibrary>.

Bay Bridge Update

Anatomy of an Emergency Repair

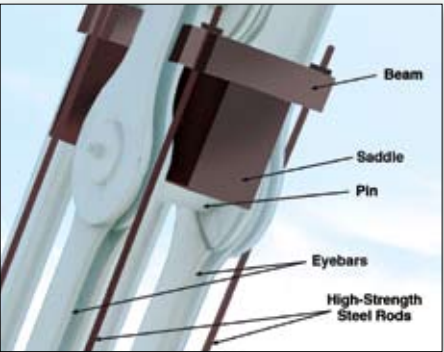


Before installing the real fix, a worker tests out a poster-board model; the eyebar fracture is visible in this view (see arrow).

“Holy smokes.” That’s what Caltrans Toll Bridge Deputy Program Manager Brian Maroney first thought to himself when Ken Brown, Caltrans’ chief of Toll Bridge Structures Maintenance, asked him to look at a crack in a crucial eyebar member in the latticework holding up the old East Span of the San Francisco-Oakland Bay Bridge. It was Saturday afternoon of the Labor Day weekend bridge closure, and Brown and Maroney had an emergency on their hands.

“It wasn’t a crack, it was a fracture. Two fingers could fit in that thing. It was huge, and it was a threat,” Maroney said. The break caused the eyebar to shift its load to the remaining eyebars, threatening overload and additional damage.

Maroney quickly assembled a team of the best and the brightest from among the engineers and construction company executives who were on the scene to direct the weekend’s main event, the operation to install the last piece of the East Span detour (see main story).



Sketching ideas on a white board and vetting them with his team, Maroney picked what he saw as the most practical fix given the situation at hand: adding high-strength, post-tensioning steel rods around the outside of the broken member to pick up the load the fractured eyebar had shed to the remaining eyebars. The rods would be connected to the bridge structure with steel saddles designed to fit around the cylindrically shaped pins that connect the eyebars together.

“The basic concept was, can we put back in the bridge system what’s been lost?” Maroney explained.

Right away, the lead contractor for the bypass project, C.C. Meyers Inc., deployed two workers and a tractor-trailer rig to help search through Avar Construction Systems’ steel yard in Fremont to locate the right size of high-strength steel rods.

The next challenge was to find a company that could fabricate the steel saddles needed to tie in the rods to the bridge itself. C.C. Myers personnel located the cell phone number of the president of Stinger Welding Inc., Carl Douglas, who

Story continued on back page

Monumental. Methodical. Miraculous. Crews Race to Complete Tricky Bypass Operation and Repair Fracture on the Bay Bridge East Span During Long Weekend Closure

Bay Bridge East Span: Extreme Engineering

We found a few of them today,” Caltrans Toll Bridge Deputy Program Manager Brian Maroney told this writer on Friday, midway through the process. “We found some extra steel that was welded and needed to be cut.”

According to Maroney, the engineers were dealing with 80-year-old plans that weren’t necessarily in sync with shop drawings of a similar vintage that were inked on linen. “The old shop drawings are works of art; they’re pieces of history,” he said. Adding to the bridge’s mysteries, still more changes were made in the field during the Depression-era construction, and they weren’t always well documented.

Engineers also had to prescribe measures to ensure that the remaining portions of the old bridge wouldn’t tilt precariously into the “maw,” the cavernous hole left when the deck section was removed.

Fortunately, the engineers had a powerful ally on their side in the form of the prime contractor on the job, C.C. Myers Inc. Based in Rancho Cordova, Calif., the firm has carved out a reputation for tackling “impossible” construction projects under extreme time pressures, including the demolition and roll-in replacement of an upper-deck segment on the same bridge over Labor Day weekend in 2007.

With the most challenging phase of the procedure completed, crews on Saturday morning (September 5) turned their attention to the rolling in of the last piece of a detour structure. The temporary detour will carry traffic to and from the Yerba Buena Island tunnel over the next several years while the new East Span of the Bay Bridge is connected to the mouth of the Yerba Buena Island tunnel. Closing the gap between the already completed Skyway — consisting of a pair of sleek, 1.2-mile-long road decks stretching westward from the Oakland shore — and the tunnel will be a striking and daring self-anchored suspension span with an iconic tower rising 525 feet above the water.

Roll In: Hurry Up and Wait

All day Saturday it was hurry up and wait as crews prepped the bypass piece and then started and stopped the roll-in procedure a couple of times. By lunchtime on Saturday, the piece appeared to have slid halfway in, a position it maintained until the late afternoon, at which point it traversed the last stretch smoothly and nearly silently, with a swift pace that belied its 3,600-ton weight.

Just as onlookers were celebrating the successful completion of the tricky roll-out/roll-in procedure and the impressive closure of the gaping hole in the double-

deck structure, Caltrans delivered stunning news at a Saturday evening press conference: Inspection crews had detected a significant fracture in an “eyebear” piece of the cantilever structure farther down the line on the old East Span. The presence of rust indicated that the break had been there for some time and was not caused by the weekend’s trauma to the bridge.

The fracture was not entirely surprising, given the span’s age; in fact, it underscored the urgent necessity for replacing the old East Span, which failed in the 1989 Loma Prieta earthquake along one section.

Fractured Eyebear Triggers Scramble

The discovery of the broken eyebar set in motion a mad scramble to design, commission and install repair parts (see sidebar to left). Stinger Welding Inc. in Arizona was able to fabricate two steel saddles in a day and ship them on a charter plane that landed in Oakland by midday on Sunday. Underscoring the time pressures, the flat-bed truck that hauled the 18,000 pounds of steel from the airport to the bridge was escorted by the CHP.

“An eyebar is a tension member; it is very important to the structure, which is the reason for the urgency to repair it now while the bridge is closed,” Mike Forner, Caltrans’ district division chief for the San Francisco-Oakland Bay Bridge, said at a

late-afternoon press briefing on Sunday.

“It has been an incredible effort to get fabricators together and the design done and all the materials here during Labor Day weekend while most people are out enjoying barbecues,” said Caltrans spokesperson Bart Ney at the press briefing.

While the eyebar repair took center stage Sunday and Monday, other important work was going on as well, most notably a major reconfiguration of the bridge’s toll plaza (see sidebar to right) that was timed to coincide with the rare bridge closure. Crews also were striping lanes, painting, hooking up the utilities that traverse the bridge, installing traffic barriers and the like.

Region Holds Its Breath

All day on Monday, Labor Day proper, the region held its collective breath, wondering if the work would be done in time for the planned reopening of the bridge at 5 a.m. on Tuesday morning. Keeping track of the progress wasn’t hard: News outlets covered the unfolding drama nearly continuously, while Caltrans public information officers posted updates on Twitter at frequent intervals. And BATA had six stationary still cameras as well as a stationary video camera trained on the bridge construction zone, delivering fresh images to the Web 24/7.

At a 6 p.m. press conference on Monday, the TBPOC confirmed commuters’ worst fears: Contractors could need another full day to complete the eyebar repairs, pushing the opening back 24 hours to 5 a.m. Wednesday. But thanks to the perseverance of the crew of ironworkers and other craftspeople who struggled on through the night, commuters woke up Tuesday morning to a pleasant surprise: starting at 6:10 a.m., the CHP began to remove barriers on the approaches, and by 7 a.m., the bridge was fully open — just two hours beyond the original planned opening time.

It was yet another dramatic twist in a dramatic weekend. End of story? Not quite. Commuters who ventured onto the new bypass early Tuesday morning had another twist to confront, this one physical: a pronounced “S” curve in the new half-mile bypass that is now carrying traffic to and from the Yerba Buena Island tunnel. The speed limit on this section has been set at 40 mph, down from the 50 mph in force elsewhere on the bridge. It’s an inconvenience that motorists will have to endure for the next four years, until the striking and seismically sturdy new East Span of the Bay Bridge completes its march toward the Yerba Buena Island tunnel.

— Brenda Kahn
(with field reports by Karin Betts)

Labor Day Weekend Photo Album

Photos 1 and 6: The Bay Bridge and Yerba Buena Island tunnel are eerily empty in these photos taken over the Labor Day weekend closure.

Photos 2, 3 and 8: Raining sparks and glowing, the bridge takes on a Las Vegas quality in these nighttime glimpses of the round-the-clock effort to detach the old deck piece and secure the new bypass.

Photo 4: Crews help guide the massive deck piece as it slowly slides across tracks (in red) lubricated with dish soap.

Photo 5: In a finishing touch, workers imprint the pavement with the new, slower speed limit in force along the bridge bypass.

Photo 7: Viewed from underneath, the prefab bypass truss looks like a geometric modern art sculpture.

Photo 9: With the bypass in place, the disconnected stub of the old East Span will be demolished to allow the new East Span (at far left) to connect to the Yerba Buena Island tunnel.

Photo 10: Ironworkers ready one of the saddles that will ease the strain on the cracked eyebar.

Photo 11: In this aerial view, the old deck piece is sitting to the side, and the replacement truss (whitish colored) is starting to slide into place.

Photo Key

1	2		3
4	5	6	7
8	9	10	11



Bay Bridge Update

Mini Toll Plaza Vanishes



In this aerial view, a light-colored scar in the pavement marks where the mini toll plaza was removed in a late-night operation.

While the dramatic aerial East Span bypass operation was unfolding at Yerba Buena Island over Labor Day weekend, a smaller demolition operation was going on at the opposite end of the East Span. Shortly after the Bay Bridge was cleared of traffic on Thursday night, mechanical excavators moved in to chew up the three-lane mini plaza, which used to sit about 400 feet beyond the main toll plaza (on the right-hand side) and was dedicated to motorists paying their tolls electronically with FasTrak®. Workers then reconfigured and repaved the lanes in that area in the first phase of a three-stage effort over the next year to smooth the way for FasTrak® customers and encourage wider use of FasTrak®.

You can watch a time-lapse of the demolition at <www.mtc.ca.gov/news/video.htm> or at <www.youtube.com/user/mgtcabaglibrary>.

Officials Turn Eyes Toward China



A completed steel deck section seems to glow against the evening sky in Shanghai, China.

With Labor Day weekend operations on the Bay Bridge successfully completed, the Toll Bridge Program Oversight Committee now turns its attention to China, where the first steel segments for the new East Span’s signature self-anchored suspension section are set to ship out this fall after a series of production challenges. MTC’s Bay Area Toll Authority (BATA), Caltrans and the California Transportation Commission are working with their Chinese counterparts to accelerate fabrication of the deck and tower pieces so as to still meet the 2013 target for the full opening of the bridge.

“The most critical factor associated with the opening of the bridge is the fabrication, delivery and erection of the steel from Shanghai,” declared Andrew Fremier, MTC’s deputy executive director overseeing BATA.

— John Goodwin

A new photo exhibit at MTC’s offices provides a window into the Shanghai Zhenhua Heavy Industry Co. in Shanghai, where an army of some 1,500 men and women are fabricating the deck and tower sections. The show can be viewed weekdays from 9 a.m. to 5 p.m. on the second floor of the MetroCenter in Oakland.